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| 10/769,583 | 01/30/2004 | Richard Golasky | 016295.1530 (DC-05847) | 8586 |

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| EXAMINER |
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LE, DIEU-MINH T

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| ART UNIT | PAPER NUMBER |
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2114

DATE MAILED: 07/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/769,583

Applicant(s)

GOLASKY ET AL.

Examiner

Dieu-Minh Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/30/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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Part III DETAILED ACTION

Specification

1. This Office Action is in response to the application 10/769,583 filed on 01/30/04.

2. Claims 1-21 are presented for examination.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 9, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated over Tawil et al. (U.S. 6,625,747 B1 hereafter referred to as Tawil).

As per claim 1:

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Tawil explicitly teaches:

- A method for recovering from a failure event on a communication path between an information handling system and a sequential storage device [abstract, fig.1-2, col. 1, lines 5-10] comprising:
 - monitoring the communication path during an information exchange for a failure event [fig.1-2, col. 2, lines 18-22; col. 4, lines 22-34];
 - marking (i.e., failure notification [col. 7, lines 5-20]), in response to detection of a failure event, a point in the information exchange at which the failure event occurred [fig.1-2, col. 8, lines 62 through col. 10, lines 12];
 - initiating a continuation of the information exchange from the point of failure on a fail-over communication path between the information handling system and the sequential storage device (i.e., operating system fail-over process) [abstract, fig. 1-2, col. 2, lines 32-48].

This is clearly shown that Tawil's computer storage system and failover method teaching capabilities are corresponding to Applicant's invention.

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As per claims 9 and 15:

Due to the similarity of claims 9 and 15 to claim 1 except for a software for completing a transition between a sequential storage device and a host information handling system embodied in **computer readable media** an information handling system comprising processor, marking point of failure, fail-over communication path, as described in claims 9 and 15, respectively instead of the method for recovering from a failure event comprising failure detection, communication path monitoring, etc... as described in claim 1; therefore, these claims are also rejected under the same rationale applied against claim 1. **In addition, all of the limitations have been noted in the rejection as per claim 1. Such as retrieve an exchange status [col. 2, lines 60 through col. 3, lines 10], processor (i.e., embedded in server) fig. 1-2.**

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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6. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deitz et al. (U.S. 6,578,158 hereafter referred to as Deitz) in view of Matsunami et al. (U.S. 7,003,687 hereafter referred to as Matsunami).

As per claim 1:

Deitz substantially teach the invention. Deitz teaches:

- A method for recovering from a failure event on a communication path between an information handling system and a sequential storage device [abstract, fig.1-3, col. 3: lines 4-10; col. 3, lines 34-42] comprising:
 - monitoring the communication path during an information exchange for a failure event [fig.1-3, col. 3, lines 13-16];
 - detection of a failure event [fig.1-3, col. 3, lines 3-25];
 - initiating a continuation of the information exchange from the point of failure on a fail-over communication path between the information handling system and the sequential storage device (i.e., **operating system fail-over process**) [abstract, fig. 1-3, col. 4, lines 5-20; col. 9, lines 15-23].

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Deitz does not explicitly address:

- marking a point in the information exchange at which the failure event occurred.

However, Deitz does disclose capability of:

- A method and apparatus for providing a RAID controller having transparent fail-over and fail-back [abstract, fig.1-3, col. 3, lines 3-25] comprising:
 - a **failback and resume operations** used to support failover process including identifying data (i.e., state data), preventing data loss, resetting signal, etc... [fig. 1-3, col. 8, lines 14 through col. 9, lines 14].

In addition, Matsunami explicitly teaches:

- A fail-over storage system [abstract, fig. 1-6, col. 1, lines 25-30] comprising:
 - means for **monitoring** the system states and **marking** a heartbeat in supporting the fail-over process [col. 14, lines 7-29].

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of Applicant's invention to first realizing Dietz's ***failback and resume operations used***

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to support failover process including identifying data (i.e., state data), preventing data loss, resetting signal, etc ...as being the marking a point in the information exchange at which the failure event occurred as claimed by Applicant. This is because Dietz performed data operating system failure detection and recovery via data/error monitoring, detecting, and correcting processes (i.e., failover). By utilizing these capabilities, the communication path between the data storage device and information system (i.e., host/servers environment) can be directed or redirected promptly and functioned properly during failover switching process in supporting the network operation; second, by applying the means for monitoring the system states and marking a heartbeat in supporting the fail-over process as taught by Matsunami in conjunction with the method and apparatus for providing a RAID controller having transparent fail-over and fail-back as taught by Dietz, the multi-path communication networking system including backup capability (i.e., OS failover) can enhance its operation performance, more specifically to ensuring the error detected, corrected, and replaced (i.e., backup) in proper and efficient manner.

This modification would have been obvious because a person having ordinary skill in the art would have been motivated to do

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so to improve the system operation availability and network/system performance therein with a mechanism to enhance the data connectivity, data debugging, data reliability, and data throughput which eventually will increase its performance, such as data throughput between internal and external devices.

As per claims 2-3 and 5-7:

Deitz further teaches:

- a connectivity among host bus adapter (HBA), storage devices, host, controllers, etc... [abstract, fig.1-3, col. 5, lines 58 through col. 6, lines 54].
- querying the sequential storage device [col. 7, lines 11-20; col. 9, lines 15-24].
- initiating continuation of the information exchange based on sequential storage device querying results [col. 4, lines 5-20; col. 7, lines 11-20; col. 9, lines 15-24].
- an originator exchange identifier, a receiver exchange identifier and a port identifier (i.e., unique identifier, port reset, etc...) [col. 8, line 59 through col. 9, line14].

Deitz does not explicitly address:

- marking a point of failure in a HBA and storage device.

However, Deitz does disclose capability of:

- A method and apparatus for providing a RAID controller having transparent fail-over and fail-back [abstract, fig.1-3, col. 3, lines 3-25] comprising:
 - a failback and resume operations used to support failover process including identifying data (i.e., state data), preventing data loss, resetting signal, etc... [fig. 1-3, col. 8, lines 14 through col. 9, lines 14].
- detection of a failure event [fig.1-3, col. 3, lines 3-25];
- initiating a continuation of the information exchange from the point of failure on a fail-over communication path between the information handling system and the sequential storage device (i.e., operating system fail-over process) [abstract, fig. 1-3, col. 4, lines 5-20; col. 9, lines 15-23].

In addition, Matsunami explicitly teaches:

- A fail-over storage system [abstract, fig. 1-6, col. 1, lines 25-30] comprising:
 - means for monitoring the system states and marking a heartbeat in supporting the fail-over process [col. 14, lines 7-29].

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Therefore, it would have been obvious to a person having ordinary skill in the art at the time of Applicant's invention to first realizing Dietz's failback and resume operations as well as failure detection function used to support failover process including identifying data (i.e., state data), preventing data loss, resetting signal, etc ...as being the marking a point of failure in a HBA and storage device as claimed by Applicant. This is because Dietz performed data operating system failure detection and recovery via data/error monitoring, detecting, and correcting processes (i.e., failover). By utilizing these capabilities, the communication path between the data storage device and information system (i.e., host/servers environment) can be directed or redirected promptly and functioned properly during failover switching process in supporting the network operation; second, by applying the means for monitoring the system states and marking a heartbeat in supporting the fail-over process as taught by Matsunami in conjunction with the method and apparatus for providing a RAID controller having transparent fail-over and fail-back as taught by Dietz, the multi-path communication networking system including backup capability (i.e., OS failover) can enhance its operation performance, more specifically to ensuring the error detected, corrected, and

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replaced (i.e., backup) in proper and efficient manner for the same reasons set forth as described in claim 1, **supra**.

As per claims 4 and 8:

Deitz further teaches:

- communicating the point of failure to a fail-over host bus adapter on the information handling system (i.e., host/server environment) using a support driver (i.e., redirecting driver) [col. 2, lines 39-59].
- passing a pointer to a buffer including contents of the information exchange from a host bus adapter associated with the failed communication path to a fail-over host bus adapter associated with a fail-over communication path [abstract, fig.1-3, col. 3, lines 3-24; col. 5, lines 58 through col. 6, lines 54].

In addition, Matsunami explicitly teaches:

- A fail-over storage system [abstract, fig. 1-6, col. 1, lines 25-30] comprising:
 - means for **monitoring** the system states and **marking** a heartbeat in supporting the fail-over process [col. 14, lines 7-29].

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As per claims 9-14:

These claims are the same as per claims 1-8. The only minor different is that these claims are directed to a software for completing a transition between a sequential storage device and a host information handling system embodied in **computer readable media** instead of the method for recovering from a failure event comprising failure detection, communication path monitoring, etc... as described in claims 1-8. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to realize that a **computer readable media** is a necessary item for such client-server, computer/host-server/controller data storage networking system, more specifically, data path communication in supporting fail-over process. Since the software for completing a communication obviously needs a means for instruction or code means resided within the machine-readable storage medium for performing the data storing, receiving, transmitting operation via the fail-over capability. Therefore, these claims are also rejected under the same rationale applied against claims 1-8.

As per claims 15-21:

Due to the similarity of claims 9-14 to claims 1-8 except for an information handling system comprising processor, marking

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point of failure, fail-over communication path, etc... instead of the method for recovering from a failure event comprising failure detection, communication path monitoring, etc... as described in claims 1-8; therefore, these claims are also rejected under the same rationale applied against claims 1-8. **In addition, all of the limitations have been noted in the rejection as per claims 1-8. Such as first, second HBA, fibre channel interfaces are illustrated by Dietz, fig. 1, col. 4, lines 60 through col. 6, line 18].**

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8. A shortened statutory period for response to this action is set to expired THREE (3) months, ZERO days from the date of this letter. Failure to respond within the period for response will cause the application to be abandoned. 35 U.S.C. 133.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dieu-Minh Le whose telephone number is (703)305-9408. The examiner can normally be reached on Monday - Thursday from 8:30 AM to 6:30 PM.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dieu-Minh

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Le whose telephone number is (571) 272-3660. The examiner can normally be reached on Monday - Thursday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Scott Baderman can be reached on (571)272-3644. The Tech Center 2100 phone number is (571) 272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**DIEU-MINH THAI LE
PRIMARY EXAMINER
ART UNIT 2114**